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The Great Masquerader: A Case Series Unveiling the Diverse Presentations of Abdominal Tuberculosis in a Middle Eastern Tertiary Hospital

Authors' Contribution:
Study Design A
Data Collection B
Statistical Analysis C
Data Interpretation D
Manuscript Preparation E
Literature Search F
Funds Collection G

BEF 1 **Ibrahim S. AlSamaani**
BEF 1 **Ragad I. AlJazzar**
BEF 1 **Abdulrahman K. Almisfer**
BEF 2 **Wed K. Alwabel** 
BEF 2 **Leen Y. Binmoieql** 
BEF 1 **Nayef A. Alzahrani**

1 Department of Surgery, King Abdulaziz Medical City,
Ministry of National Guard Health Affairs, Riyadh, Saudi Arabia
2 College of Medicine, King Saud bin Abdulaziz University for Health Sciences,
Riyadh, Saudi Arabia

Corresponding Author: Ragad I. AlJazzar, General Surgery, King Abdulaziz Medical City, Ministry of National Guard Health Affairs,
Al Rimayah St, Riyadh, Saudi Arabia
Phone: 00966583251192, e-mail: Raghadjazzar@gmail.com
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Case series

Patients: Male, 81-year-old • Female, 26-year-old • Male, 60-year-old • Female, 26-year-old

Final Diagnosis: Abdominal tuberculosis

Symptoms: Abdominal pain

Clinical Procedure: —

Specialty: Surgery

Objective: Rare disease

Background: Abdominal tuberculosis (TB) remains a diagnostic challenge because of its diverse clinical manifestations and ability to mimic other surgical conditions. The global burden of TB, particularly in low- and middle-income countries, further compounds this diagnostic challenge. Delayed diagnosis contributes to substantial morbidity, especially in regions where TB is endemic.

Case Reports: This case series highlights 4 distinct presentations of abdominal TB, emphasizing early recognition and multidisciplinary management. The diagnosis was established or considered presumptively based on a combination of clinical assessment, radiological findings, intraoperative observations, microbiological testing, and histopathological examination. Despite standard anti-tuberculous therapy initiation in all patients, 2 experienced progressive clinical deterioration and subsequently died. The cases included: 1. Ileocecal TB causing small bowel obstruction with terminal ileal perforation in a patient previously treated with intravesical Bacille Calmette-Guérin (BCG) therapy for bladder cancer, in whom disseminated BCG infection could not be definitively distinguished from *Mycobacterium tuberculosis* infection. 2. Retroperitoneal TB presenting as a cystic mass initially suspected to represent an ovarian cyst or soft tissue neoplasm. 3. Peritoneal TB mimicking recurrent peritoneal metastases in a patient with a history of colorectal cancer, in whom TB polymerase chain reaction and acid-fast bacilli staining results were negative; histopathology and multidisciplinary assessment supported a presumptive diagnosis. 4. A retroperitoneal tuberculous abscess with vertebral involvement requiring percutaneous drainage and microbiological confirmation.

Conclusions: This case series underscores the importance of maintaining a high index of suspicion for abdominal TB, particularly when clinical and radiological findings mimic malignancy. Histopathological assessment and multidisciplinary collaboration remain essential when microbiological investigations are inconclusive.

Keywords: Case Reports • Diagnosis, Differential • Gastroenterology • Signs and Symptoms • Tuberculosis, Abdominal

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Introduction

Tuberculosis (TB) remains a major global health challenge in terms of its presentation, diagnosis, management, and prevention. It is estimated that approximately one-quarter of the world's population has been infected with TB [1]. Of these individuals, approximately 5% to 10% will develop active disease during their lifetime [1]. TB exhibits a wide spectrum of clinical manifestations. One such manifestation is extrapulmonary TB, which represents approximately 12% of all TB cases and includes gastrointestinal, peritoneal, lymph node, and retroperitoneal involvement [2].

Peritoneal TB is a rare form of extrapulmonary TB, comprising 1% to 3% of cases and causing serious diagnostic challenges because of its varied clinical presentation [3]. In Saudi Arabia, non-national residents experienced a substantial proportion of extrapulmonary TB cases in 2019 [4]. Previous studies have shown that abdominal TB commonly presents with nonspecific symptoms, most often abdominal pain, followed by anorexia and pyrexia [1,5]. Diagnostic modalities that aid the evaluation of abdominal TB include serum markers, imaging studies, ascitic fluid analysis, direct tissue biopsy, and interferon-gamma release assays. Although interferon-gamma release assays may assist with identifying TB infection, they cannot differentiate between active disease and latent infection [3,6].

The nonspecific nature of abdominal TB frequently leads to misdiagnosis and delays in appropriate management. This case series describes 4 distinct presentations of abdominal TB in which the diagnosis was not initially suspected, resulting in considerable diagnostic uncertainty.

Case Reports

Case 1

An 81-year-old man with a history of noninvasive papillary urothelial carcinoma of the bladder underwent 2 transurethral resections of bladder tumor, followed by intravesical mitomycin therapy. During routine surveillance in 2020, cystoscopy revealed multiple bladder masses concerning for recurrence. The patient subsequently underwent a third transurethral resection of bladder tumor, and histopathological examination demonstrated high-grade papillary urothelial carcinoma. A further course of intravesical mitomycin was initiated in addition to intravesical Bacille Calmette-Guérin (BCG) therapy. He completed treatment in 2021 and remained well during routine follow-up, without evidence of recurrence.

In 2025, the patient presented to the emergency department with a 3-week history of persistent diarrhea, lethargy, and

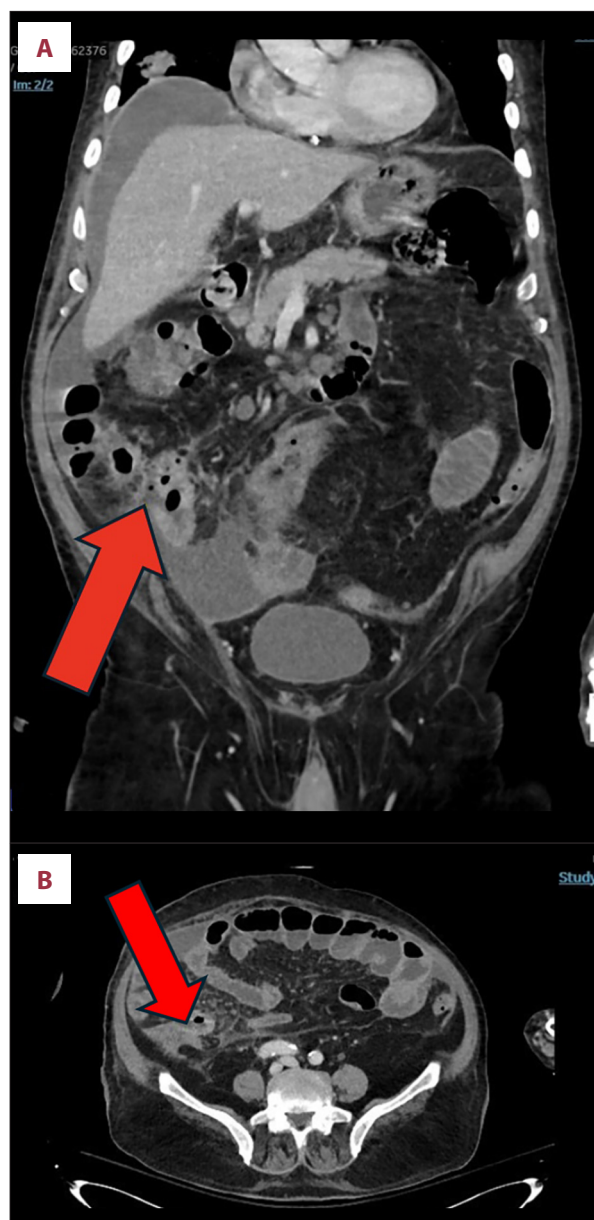


Figure 1. Coronal (A) and axial (B) abdominal computed tomography images showing bowel perforation with a surrounding collection. Adapted from [13]; licensed under CC BY 4.0.

vomiting. Computed tomography (CT) of the abdomen demonstrated a moderate-grade small bowel obstruction with perforation of the terminal ileum, possibly secondary to underlying ischemia or metastatic disease. Findings also were suggestive of acute peritonitis (Figure 1). Overall, the radiological findings were highly suspicious for progressive metastatic disease involving the peritoneum, lymph nodes, liver, and lungs.

The patient underwent emergency exploratory laparotomy, bowel resection, and stoma creation. Intraoperatively, a substantial

volume of ascitic fluid was encountered upon entry into the abdominal cavity. The small bowel appeared congested and densely adherent to the right side of the abdomen. A perforation was identified in the cecum immediately below the ileocecal valve, with leakage of bowel contents. Extensive tumor-like deposits were observed within the terminal ileum, causing near-complete luminal obstruction. Multiple enlarged mesenteric lymph nodes and numerous deposits on the peritoneum and small bowel wall also were identified. A limited ileocecal resection with end ileostomy was performed. Surgical specimens included the resected ileocecal segment and mesenteric lymph nodes.

Postoperatively, the patient was admitted to the intensive care unit (ICU). Because of difficulty weaning the patient from supplemental oxygen, a CT scan of the chest was performed, revealing multiple bilateral pulmonary nodules and masses with enlarged intrathoracic lymph nodes. Given the patient's history of bladder cancer and the abdominal and intraoperative findings, these radiological features were initially interpreted as widespread metastatic disease.

A family meeting was conducted to discuss goals of care, and comfort-focused management was considered because of the presumed advanced systemic progression of malignancy and poor prognosis.

Subsequently, the pathologist reviewing surgical specimens advised implementation of airborne isolation precautions because both the mesenteric lymph node and ileocecal specimens demonstrated features highly suggestive of TB, without evidence of malignancy. Further investigations were undertaken. Sputum samples showed *Mycobacterium tuberculosis* complex positivity on acid-fast bacilli (AFB) culture. TB polymerase chain reaction (PCR) revealed *M. tuberculosis* complex positivity; no rifampicin resistance was detected by the Xpert MTB/RIF Ultra assay. QuantiFERON-TB testing yielded an indeterminate result. These findings explained the patient's active pulmonary disease and increasing oxygen requirements. Histopathological examination of surgical specimens demonstrated necrotizing granulomatous inflammation.

Given the patient's history of intravesical BCG therapy, the findings raised the possibility of disseminated BCG infection. Alternatively, disseminated infection with *M. tuberculosis* was considered. Although the Xpert MTB/RIF Ultra assay detected *M. tuberculosis* complex, species- or strain-level differentiation between *Mycobacterium bovis* BCG and *M. tuberculosis* was not performed or was unavailable. Therefore, disseminated BCG infection could not be definitively distinguished from disseminated *M. tuberculosis* infection, and the specific etiological attribution remained presumptive. After multidisciplinary discussions involving the Infectious Diseases, Medical Oncology, and ICU teams, and given the histopathological evidence of necrotizing

granulomatous inflammation along with microbiological evidence of active mycobacterial infection and pulmonary involvement, anti-tuberculous therapy was initiated. The patient began receiving prednisolone and standard RIPE therapy consisting of rifampicin, isoniazid, pyrazinamide, and ethambutol.

Despite treatment, the patient's condition continued to deteriorate. Pulmonary TB, intra-abdominal sepsis, and bone marrow suppression manifested by pancytopenia failed to improve. He subsequently developed septic shock and multiorgan failure, which were considered by both the Infectious Diseases and ICU teams to be primarily attributable to disseminated TB. One month after surgery, the patient died in the ICU as a result of sepsis and multiorgan failure.

Case 2

A previously healthy 26-year-old woman initially presented to a gynecology outpatient clinic with a presumed ovarian cyst. She reported regular menstrual cycles without dysmenorrhea or abnormal uterine bleeding. Physical examination revealed a palpable cystic mass in the right lower quadrant. Initial bedside ultrasonography demonstrated a large cystic lesion adjacent to the right ovary. Tumor markers, including carbohydrate antigen (CA) 19-9, CA 125, alpha fetoprotein, and carcinoembryonic antigen, were within normal limits. Subsequent gynecologic imaging confirmed a 10-cm simple cyst separate from the ovarian structures, prompting further evaluation.

Magnetic resonance imaging revealed a large retroperitoneal cyst, which contained internal septations and peripheral papillary-like projections, arising from the right psoas muscle. These findings raised concern for a soft tissue neoplasm; differential diagnoses included myxoid sarcoma and malignant fibrous histiocytoma (Figures 2, 3).

The patient was urgently referred to the Surgical Oncology service. During consultation, she reported a 3-month history of progressive right flank pain that greatly impaired her mobility. Physical examination demonstrated a firm, non-tender palpable mass in the right lower quadrant. She denied constitutional symptoms, including fever, night sweats, and weight loss. Contrast-enhanced CT of the abdomen and pelvis further characterized the lesion as a 6.7 × 7.5 × 10.3 cm cystic mass within the right psoas muscle, exhibiting nodular rim enhancement (Figures 4, 5).

The patient subsequently underwent exploratory laparotomy, which revealed a large retroperitoneal cyst densely adherent to surrounding structures, including the psoas muscle. Complete surgical excision was achieved. Her postoperative course was briefly complicated by pruritus and unilateral lower-limb heaviness, both of which were managed conservatively.



Figure 2. Axial pelvic magnetic resonance imaging scan showing a retroperitoneal cyst.



Figure 3. Coronal pelvic magnetic resonance imaging scan showing septations and peripheral projections.

Histopathological examination demonstrated cystic granulomatous inflammation and necrotizing granulomatous lymphadenitis, findings highly suggestive of TB despite negative AFB staining results. PCR testing confirmed the presence of *Mycobacterium tuberculosis* without evidence of rifampicin resistance, establishing the diagnosis of extrapulmonary TB.

The patient began receiving standard 4-drug anti-tuberculous (RIPE) therapy. Subsequent chest imaging showed no evidence of pulmonary involvement. At follow-up, she demonstrated complete resolution of symptoms, satisfactory wound healing, and no evidence of disease recurrence.



Figure 4. Axial contrast-enhanced computed tomography image showing nodular enhancement of the cyst.

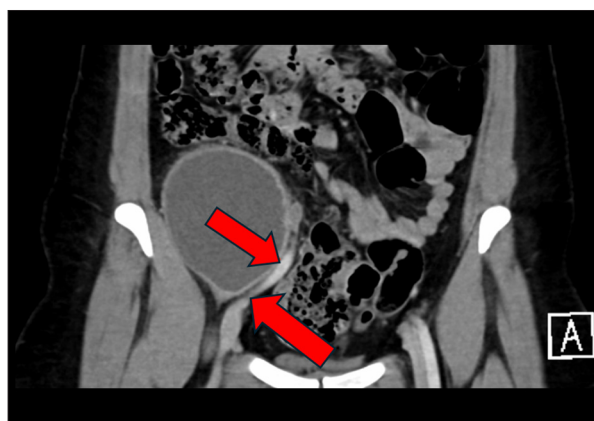


Figure 5. Coronal contrast-enhanced computed tomography image showing mass effect on the iliac vessels.

Case 3

A 60-year-old man presented to the General Surgery Clinic with diffuse abdominal pain. He had a history of rectosigmoid adenocarcinoma, for which he underwent sigmoidectomy followed by adjuvant chemotherapy in 2019. During surveillance, disease recurrence was identified; metastases involved the liver, peritoneum, and right chest wall. The patient subsequently received systemic chemotherapy and stereotactic body radiation therapy for the hepatic lesion.

Interval imaging demonstrated mild improvement in hepatic metastatic disease and minimal improvement in the peritoneal and right anterior chest wall deposits. The case was discussed at a multidisciplinary team meeting. Given the favorable response to treatment, the medical and surgical oncology teams reached a consensus to discontinue chemotherapy and proceed with surgical intervention.

The patient underwent exploratory laparotomy, omentectomy, segment VI and VII liver resection, right diaphragmatic nodule

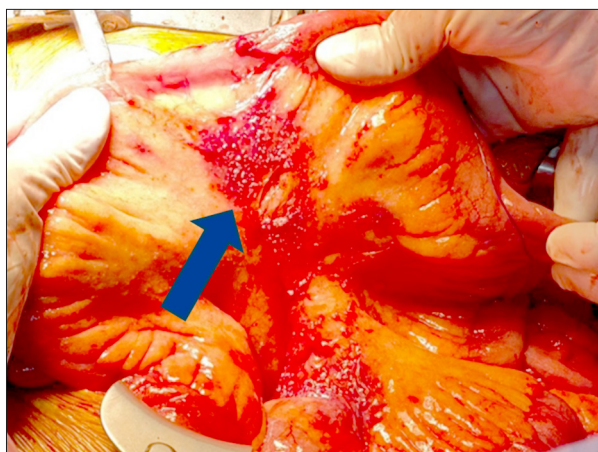


Figure 6. Macroscopic mesenteric deposits. Adapted from [14]; licensed under CC BY 4.0.

resection, and cholecystectomy (**Figure 6**). Complete cytoreduction was achieved. Histopathological examination of the omentum, right upper quadrant nodule, and liver segments VI and VII demonstrated moderately differentiated metastatic colonic adenocarcinoma, which appeared to have been completely resected. The patient subsequently received adjuvant chemotherapy.

One year after cytoreductive surgery, surveillance imaging revealed interval development of multiple peritoneal nodules (**Figure 7**), predominantly involving the left paracolic gutter, with associated mesenteric congestion and irregularity suggestive of peritoneal carcinomatosis. Enlarged cardiophrenic and gastrohepatic lymph nodes also were identified. No gross hepatic lesions were detected. Additionally, focal tracer uptake was noted along the previous hepatic resection margin, raising

suspicion for residual or recurrent metastatic disease. Tumor markers, including alpha fetoprotein, carcinoembryonic antigen, and CA 19-9, remained within normal limits throughout the disease course.

The case was again discussed at a multidisciplinary team meeting, and surgical intervention was recommended. The patient underwent exploratory laparotomy, extensive adhesiolysis, completion omentectomy, left paracolic peritonectomy, and electroevaporation of a small bowel mesenteric nodule. Complete cytoreduction was achieved.

Histopathological examination of the small bowel mesenteric and peritoneal nodules demonstrated fibroadipose tissue with chronic granulomatous inflammation, predominantly non-necrotizing with occasional necrotizing granulomas. No evidence of malignancy was identified. AFB staining and TB PCR using the Xpert MTB/RIF Ultra assay both showed negative results (**Figure 8**).

The findings created pronounced diagnostic uncertainty because recurrent peritoneal carcinomatosis remained an important differential diagnosis, given the patient's known history of metastatic colorectal adenocarcinoma and the radiological appearance of the peritoneal nodules. However, histopathological examination of multiple sampled peritoneal and mesenteric lesions demonstrated granulomatous inflammation without evidence of recurrent malignancy. Additionally, the presence of occasional necrotizing granulomas raised the possibility of an infectious granulomatous process, particularly TB. Other differential diagnoses for granulomatous inflammation, including fungal infections and other inflammatory or granulomatous disorders, also were considered.

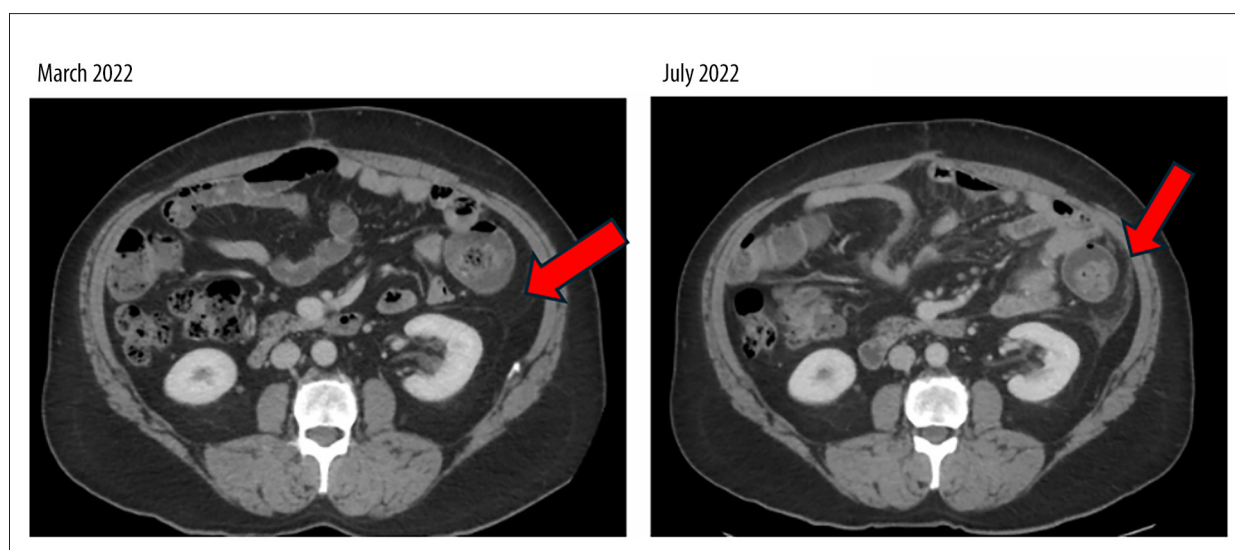


Figure 7. Interval development of peritoneal nodularity, predominantly in the left paracolic gutter, associated with mesenteric congestion and free fluid. Adapted from [14]; licensed under CC BY 4.0.

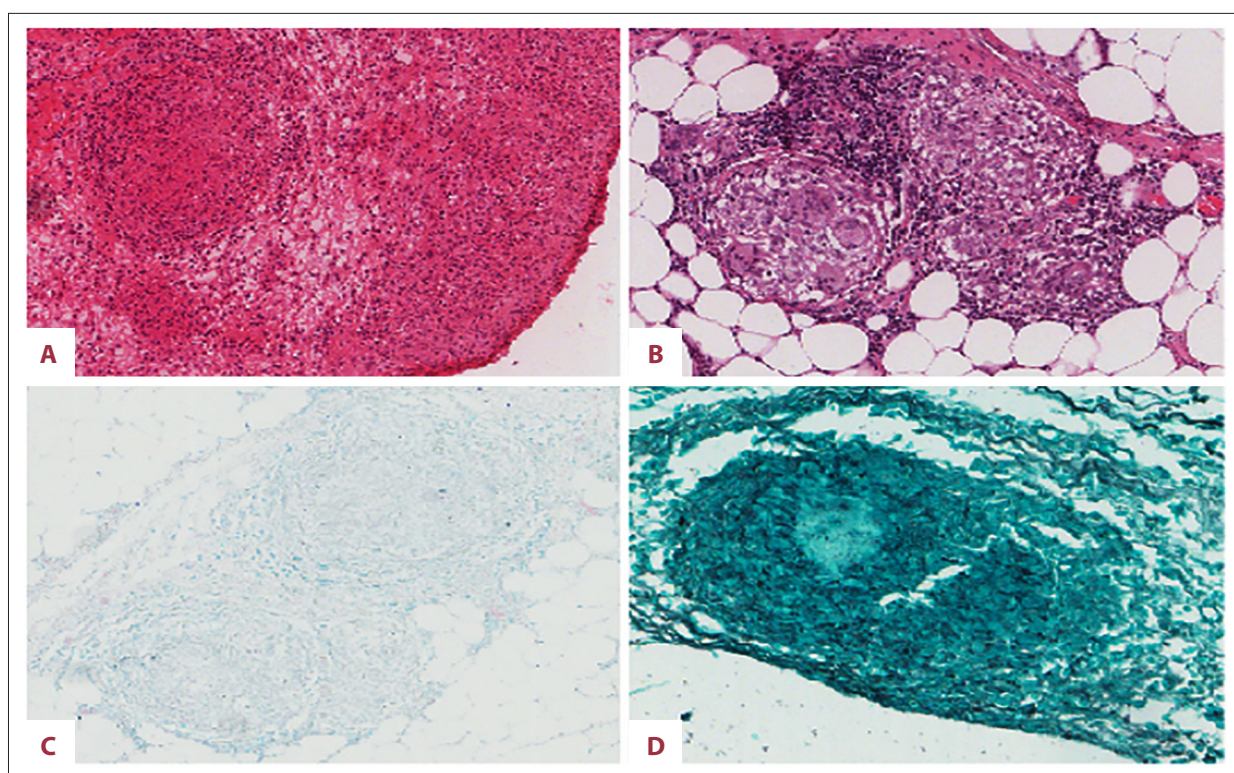


Figure 8. (A) Frozen section stained with hematoxylin and eosin at medium magnification ($\times 10$), showing non-necrotizing granulomatous inflammation. (B) Permanent section. (C, D) Ziehl-Neelsen and Grocott methenamine silver stains, respectively; both show negative results. Adapted from [14]; licensed under CC BY 4.0.

The Infectious Diseases team was consulted because of suspected peritoneal TB. The patient had a positive family history of TB; his father had been diagnosed with active TB several years earlier. After multidisciplinary review of the clinical, radiological, operative, and histopathological findings, including assessment by the Infectious Diseases team, peritoneal TB was considered the most likely diagnosis despite negative results on AFB staining and TB PCR. Given the strong clinical suspicion, characteristic granulomatous histopathological findings, absence of malignancy in the sampled lesions, and positive family history of TB, anti-tuberculous therapy with the standard RIPE regimen was initiated. The diagnosis remained presumptive because microbiological confirmation was not obtained.

During long-term follow-up, the patient experienced progressive clinical decline, requiring multiple hospital admissions. He reported reduced oral intake and subsequently developed generalized edema and bilateral pleural effusions. During his final admission, he developed respiratory failure with escalating oxygen requirements, which resulted in death.

Case 4

A 26-year-old woman without known medical comorbidities presented with a 5-month history of progressively worsening

right-sided abdominal pain radiating to the back and exacerbated by movement. One week before presentation, she also developed worsening shortness of breath.

Physical examination revealed tenderness over the right iliac fossa and right flank. Laboratory investigations demonstrated elevated inflammatory markers, including a C-reactive protein level of 55.7 mg/L and erythrocyte sedimentation rate of 50 mm/h.

Contrast-enhanced CT of the abdomen and pelvis revealed a large right retroperitoneal abscess with extension into the subcutaneous tissues, involvement of the right iliac bone, reactive external iliac lymphadenopathy, and multiple vertebral lytic lesions (Figure 9).

Further evaluation with magnetic resonance imaging of the spine demonstrated involvement of the T4-T6 vertebral bodies with heterogeneous enhancement and dural extension; no intervertebral disc involvement or drainable spinal collections were evident (Figure 10). These findings were highly suggestive of spinal TB.

The QuantiFERON-TB assay result was positive. Collectively, the clinical and radiological findings were consistent with

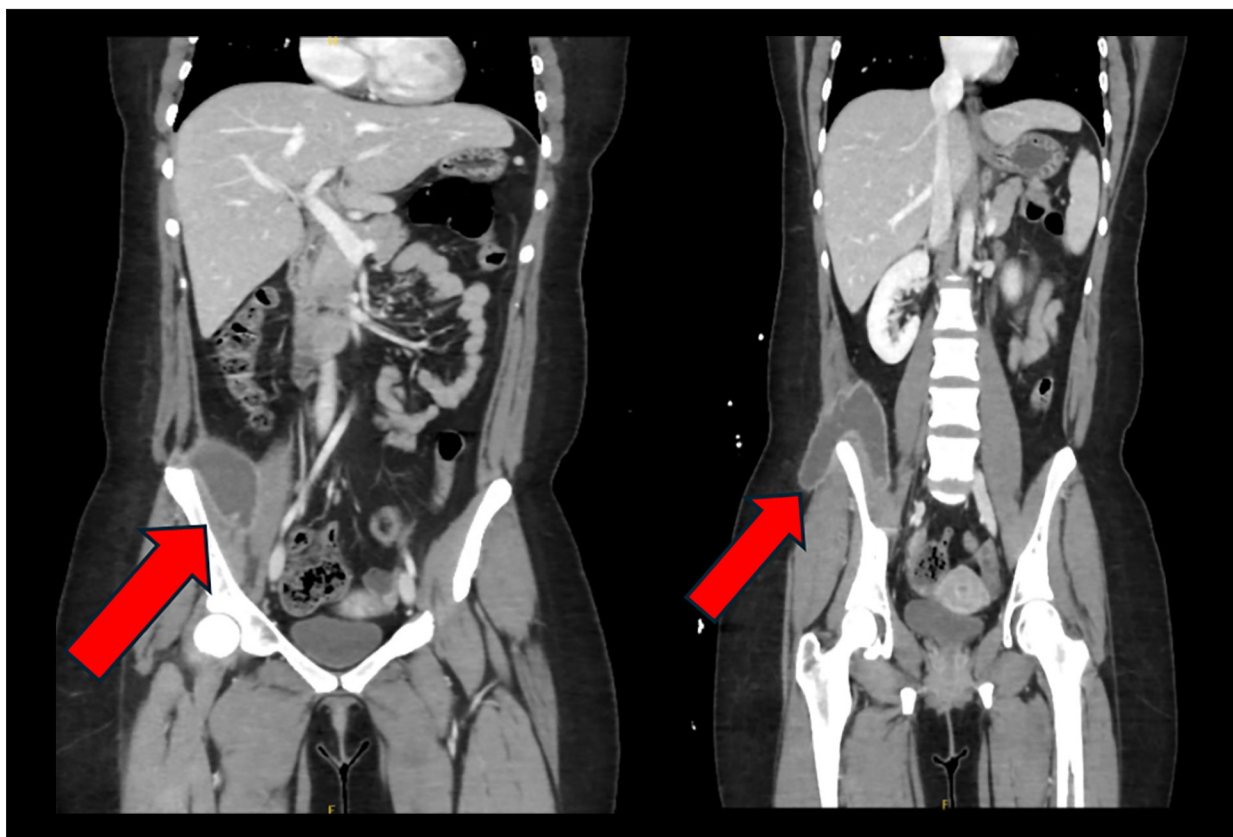


Figure 9. Coronal computed tomography image showing the retroperitoneal abscess.



Figure 10. Sagittal spinal magnetic resonance imaging scan showing involvement of the T4-T6 vertebral bodies.

disseminated TB involving the retroperitoneum, vertebral column, and surrounding soft tissues.

The patient underwent successful ultrasound-guided percutaneous drainage of the retroperitoneal collection, yielding approximately 155 mL of purulent fluid. Analysis of the aspirate showed *M. tuberculosis* complex positivity according to GeneXpert PCR. AFB culture subsequently confirmed *M. tuberculosis* susceptible to first-line anti-tuberculous agents, including rifampicin.

Based on these findings, the patient began receiving standard anti-tuberculous therapy with the RIPE regimen. Her clinical condition improved; she was discharged home in stable condition with outpatient follow-up arranged.

Discussion

Extrapulmonary TB comprises approximately 12% of all TB cases, and abdominal TB represents 6% to 13% of extrapulmonary TB cases [2]. Abdominal TB may occur in association with active pulmonary TB in 6% to 38% of cases or present in isolation. Primary TB develops after initial exposure to *M. tuberculosis*, with subsequent spread to the gastrointestinal tract, peritoneum, mesenteric lymph nodes, or solid abdominal

organs through hematogenous dissemination, ingestion of infected sputum, or direct extension from adjacent structures. In contrast, reactivation TB occurs when dormant bacilli acquired during a previous infection become active, typically in the setting of impaired host immunity. Reactivation is considered the predominant mechanism in adults and is frequently associated with immunosuppressive conditions such as malignancy, diabetes mellitus, chronic kidney disease, and human immunodeficiency virus infection [7].

Several mechanisms contribute to the development and spread of abdominal TB, including hematogenous dissemination from a distant focus, lymphatic spread from infected lymph nodes, direct extension from adjacent organs, and ingestion of products contaminated with *M. bovis*. Diagnosis is often delayed because of nonspecific constitutional and gastrointestinal symptoms, including abdominal pain, abdominal distension, fever, weight loss, and night sweats [7,8].

The diagnostic journeys in our case series highlight the considerable challenges posed by abdominal TB, reinforcing its reputation as “the great masquerader.” Our patients presented with a broad spectrum of clinical manifestations, ranging from retroperitoneal masses to bowel obstruction and presumed peritoneal carcinomatosis. In each case, alternative diagnoses were initially favored because of the atypical presentation and radiological resemblance to malignant disease.

Particularly noteworthy was the first case, in which disseminated mycobacterial infection was identified in a patient previously treated with intravesical BCG therapy for non-muscle-invasive bladder cancer. Holmberg et al reported that disseminated BCG infection is a rare but recognized complication of intravesical BCG therapy, occurring in approximately 1% of treated patients [9]. Reported risk factors include advanced age, male sex, larger tumor burden, and a short interval between transurethral resection and BCG instillation [9]. In our patient, disseminated BCG infection was an important consideration because of the previous intravesical BCG exposure and subsequent disseminated clinical presentation. Although the Xpert MTB/RIF Ultra assay detected *M. tuberculosis* complex, species- or strain-level differentiation between *M. bovis* BCG and *M. tuberculosis* was not performed or was unavailable. Therefore, disseminated BCG infection could not be definitively distinguished from disseminated *M. tuberculosis* infection, and the specific etiological attribution remained presumptive.

Despite advances in cross-sectional imaging, CT findings alone are often insufficient to distinguish abdominal TB from malignancy. Although imaging may reveal suggestive features such as necrotic lymphadenopathy, peritoneal thickening, ascites, and omental involvement, these findings frequently overlap with observations linked to metastatic disease. Therefore, atypical

clinical presentations, failure to respond to conventional treatment, or rapid clinical deterioration should prompt further investigation and consideration of alternative diagnoses, including TB.

The diagnostic ambiguity encountered in our patients required an extensive and, in some cases, invasive diagnostic workup. Ascitic fluid analysis may be inconclusive, whereas image-guided biopsies can yield insufficient or predominantly necrotic tissue for definitive diagnosis. AlHajji et al described a case of extrapulmonary TB in a patient who presented with diverse manifestations, including cavitary brain lesions, cervical lymphadenopathy, subcutaneous neck collections, sacral lytic lesions, and paraspinal or gluteal abscesses [10]. Similar to our experience, definitive diagnoses were ultimately established via microbiological confirmation through TB PCR analysis of drained collections.

Unlike previously reported cases in which abdominal TB was strongly suspected at presentation, TB was not the leading differential diagnosis in our patients because of their nonspecific clinical and radiological features. In the first 2 cases, the diagnosis was supported by histopathological examination of surgical specimens; microbiological confirmation was obtained in both cases. In the third case, both TB PCR and AFB staining results were negative. Nevertheless, histopathological examination of multiple peritoneal and mesenteric nodules demonstrated chronic granulomatous inflammation with occasional necrotizing granulomas but no evidence of recurrent malignancy in the sampled lesions. Given the patient’s history of metastatic colorectal cancer, recurrent peritoneal carcinomatosis remained an important differential diagnosis; however, the histopathological findings did not support malignancy. Other potential causes of granulomatous inflammation, including fungal infection and other inflammatory or granulomatous disorders, also were considered. After multidisciplinary review, including consultation with the Infectious Diseases team, and given the overall clinical, radiological, operative, and histopathological findings, along with a positive family history of tuberculosis, peritoneal TB was considered the most likely diagnosis. Anti-tuberculous therapy was therefore initiated despite the absence of microbiological confirmation, and the diagnosis remained presumptive. In the fourth case, the diagnosis was confirmed by positive results in QuantiFERON-TB testing, GeneXpert PCR, and AFB culture of the drained abscess.

Consequently, exploratory laparotomy played a key role in establishing the diagnosis in our series; laparoscopic intervention was either not feasible or not pursued in these patients. Nonetheless, diagnostic laparoscopy has emerged as a valuable modality for evaluating suspected abdominal TB, allowing direct visualization of peritoneal nodules, adhesions, and peritoneal thickening while facilitating tissue acquisition for histopathological examination. Concerns regarding port-site seeding may limit its use in patients with a strong suspicion of malignancy.

A study in Germany evaluating mini-laparoscopy for the diagnosis of abdominal TB indicated that TB was diagnosed in 29 of 49 patients. A limitation of this technique was the inability to adequately visualize the spleen in 48% of patients due to extensive intra-abdominal adhesions [11]. Despite such limitations, minimally invasive techniques remain important diagnostic tools when conventional investigations are inconclusive.

The diagnosis in our series was strongly supported in several cases by histopathological identification of granulomatous inflammation, including necrotizing granulomas. Although necrotizing granulomas are commonly associated with TB, several differential diagnoses should be considered, including fungal infections such as histoplasmosis and, less commonly, brucellosis, yersiniosis, and tertiary syphilis. In the appropriate clinical context, these histopathological findings may support the initiation of anti-tuberculous therapy even in the absence of microbiological confirmation, although the diagnosis should be regarded as presumptive when microbiological confirmation is unavailable.

The diagnostic complexity of abdominal TB has been highlighted in other contemporary reports. Tong et al described a young woman with tuberculous peritonitis who presented with abdominal pain, fever, ascites, and extensive peritoneal disease on CT imaging, findings that initially raised concern for alternative benign and malignant pathologies. The diagnosis was ultimately established through ascitic fluid analysis that confirmed *M. tuberculosis*. Similar to our series, their case underscores the nonspecific clinical and radiological manifestations of abdominal TB and its propensity to mimic intra-abdominal malignancy. However, unlike their patient, several patients in our series required invasive tissue acquisition for definitive diagnosis, highlighting the importance of histopathological evaluation and the potential utility of diagnostic laparoscopy for tissue acquisition when noninvasive investigations are inconclusive [12].

Conclusions

This case series demonstrates that abdominal TB remains a diagnostic challenge because of its nonspecific clinical

presentation and remarkable ability to mimic a wide range of surgical and oncological conditions. Establishment of a definitive diagnosis often requires a sequential, multimodal approach integrating clinical assessment, radiological findings, microbiological investigations, and histopathological examination.

Based on our experience with this 4-patient case series, we suggest an experience-based approach to suspected abdominal TB that begins with thorough clinical evaluation and contrast-enhanced CT imaging, followed by microbiological and histopathological assessment of accessible lesions. Diagnostic laparoscopy should be considered early when noninvasive investigations are inconclusive and clinical suspicion remains high. However, this proposed sequence reflects our experience with 4 patients and should not be interpreted as a validated diagnostic algorithm.

Ultimately, maintaining a high index of suspicion and adopting a multidisciplinary approach are essential to achieve timely diagnosis, initiate appropriate treatment, and avoid unnecessary invasive procedures.

Institution Where Work Was Done

King Abdulaziz Medical City, Ministry of National Guard Health Affairs, Riyadh, Saudi Arabia.

Patient Consent

Written informed consent was obtained from all patients for publication of their clinical information.

Acknowledgment

This series includes (and cites) previously published cases.

Declaration of Figures' Authenticity

All figures submitted have been created by the authors who confirm that the images are original with no duplication and have not been previously published in whole or in part, except Figure 1 Adapted from [13]; licensed under CC BY 4.0, Figure 6, 7, 8 Adapted from [14]; licensed under CC BY 4.0.

References:

1. World Health Organization. Tuberculosis [Internet]. 2023 [cited 2025 Nov 24]. Available from: <https://www.who.int/news-room/fact-sheets/detail/tuberculosis>
2. Udgirkar S, Jain S, Pawar S, et al. Clinical profile, drug resistance pattern and treatment outcomes of abdominal tuberculosis patients in western India. *Arq Gastroenterol*. 2019;56(2):178-83
3. Diop AD, Fontarensky M, Montoriol PF, Da Ines D. CT imaging of peritoneal carcinomatosis and its mimics. *Diagn Interv Imaging*. 2014;95(9):861-72
4. Ministry of Health (SA). National tuberculosis program manual. Riyadh (SA): Ministry of Health; 2024 [cited 2026 Jun 8]. Available from: <https://www.moh.gov.sa/Documents/National-TB-program.pdf>
5. Awasthi S, Saxena M, Ahmad F, Kumar A, Dutta S. Abdominal tuberculosis: A diagnostic dilemma. *J Clin Diagn Res*. 2015;9(5):EC01-3
6. Jha DK, Pathiyil MM, Sharma V. Evidence-based approach to diagnosis and management of abdominal tuberculosis. *Indian J Gastroenterol*. 2023;42(1):17-31

7. Tobin EH, Khatri AM. Abdominal tuberculosis. [Updated 2025 Feb 6]. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2026. Available from: <https://www.ncbi.nlm.nih.gov/books/NBK556115/>
8. Cho JK, Choi YM, Lee SS, et al. Clinical features and outcomes of abdominal tuberculosis in southeastern Korea: 12 years of experience. BMC Infect Dis. 2018;18(1):699
9. Holmberg L, Skogmar S, Garmo H, et al. Cumulative incidence of and risk factors for BCG infection after adjuvant BCG instillations. BJU Int. 2024;134(2):229-38
10. AlHajji MA, Auda A, Almukhizem AK, et al. Disseminated extrapulmonary tuberculosis in an immunocompetent individual without pulmonary involvement: A case report. Cureus. 2024;16(7):e64138
11. Brehm TT, Ndzedzeka-Völz N, Wehmeyer M, et al. Mini-laparoscopy as a diagnostic tool for abdominal tuberculosis: A retrospective series of 29 cases. Surg Endosc. 2023;37(3):1830-37
12. Tong CW, Sarofim M, Wijayawardana R, Morris DL. Peritoneal tuberculosis in Western countries: A rare case with concurrent helminthic infection. Cureus. 2024;16(2):e54438
13. Alwabel W, Almisfer A, Alsamaani I, et al. Intravesical therapy for bladder cancer causing disseminated tuberculosis and perforated viscus: A case report. J Surg Case Rep. 2026;2026(3):rjag131
14. Al Jazzar RI, Sulaihim Z, Alkhiary A, Alzahrani N. Abdominal tuberculosis mimicking peritoneal metastasis. Pleura Peritoneum. 2023;8(3):139-40